

THURSDAY, NOVEMBER 28, 1901.

*PUBLIC HEALTH ADMINISTRATION IN AMERICA.*

*Municipal Sanitation in the United States.* By Chas. V. Chapin, M.D., Superintendent of Health of the City of Providence. Pp. viii + 970. (Providence, R.I.: Snow and Farnham, The Providence Press, 1901.)

THIS work is not a treatise on the principles of sanitation, and, in fact, these principles are rarely referred to; it is rather a compendium of sanitary practice in the United States of America. The author devotes but little space to an expression of his own views, but his opinions whenever given are such as will meet with very general approval. In the introduction he states that the preparation of the present volume was primarily undertaken to meet his personal needs. An investigation along several lines of public health work suggested the utility of a comprehensive study of sanitary methods, and, as a consequence, this volume was prepared, in the hope that the material gathered together will prove as useful to other health officers as it has to the author.

The work is designed for American readers, but much of it will prove interesting and suggestive reading to those who have to do with sanitary administration in this country. The points which will perhaps strike the British reader most are: The extent to which the sanitary law or procedure may vary in different States; the scope and stringency of certain sanitary regulations; and the frequent paucity of efficient machinery to see that the law is observed. It is comparatively easy to frame an almost ideal set of sanitary statutes and regulations, but it is a very difficult matter to enforce them thoroughly, and it is evident that sanitary administration does not always keep pace with sanitary legislation in the United States. The average of all those cities of America, given in a rather long table on pp. 128 and 129 of the work, show the population for one inspector to be about 30,000; but in Providence there is only one to every 87,000 of population. A great many health officers, we are informed, receive no compensation at all, but serve their fellow-citizens simply from public spirit; thus in Minnesota in 1898, of 214 health officers, 83 received no pay, and one of these was in "a city of 5000 inhabitants." In villages, towns and cities of small or moderate size, the health officer is expected to do nearly all the sanitary work of the community. He acts as the secretary to the Board of Health, and attends personally to communicable disease, attaching placards, giving instructions and often doing the disinfection himself. He also investigates nuisances and often serves notices for abatement. As a general rule, the scale of pay to the health officers is very similar to that in Great Britain. It is, moreover, very generally the custom in cities, often of moderate size, for the health officer to be entrusted with the duty of collecting and recording the deaths in the population.

In America, boards of health, which are now established in all the States except Georgia, Idaho, Montana, Oregon and Wyoming, are given more or less legislative and executive authority in matters which experience has shown they can best control, but as a rule the State

Board of Health is considered chiefly as an advisory board. In many cases the State reserves to its State Board of Health executive powers in matters of quarantine, the control of communicable disease and diseases of animals, the adulteration of food, &c.; and the State Board of Health in Massachusetts has, in addition, set an example in the work of investigation which it will be difficult for others to equal, and that Board's extensive experiments upon water and sewage purification are highly valued by sanitarians in this country. The principles of local self-government in sanitary affairs in other countries is in the main recognised and adhered to. Outside of municipalities the sanitary organisation, usually in the form of boards of health, may be established either in townships or counties. Of the thirty-six States, twenty have provided for a county form of sanitary government, and sixteen have a township form of sanitary government.

Reference may here be made to a few matters of public health administration in the United States which are of special interest to British readers. The use of preservative in milk or cream is altogether forbidden in some States, and several State and municipal standards for milk require 3·5 per cent. of fat and 9 per cent. of solids non-fat—a higher standard than that which obtains in this country; and in the city of New York, condensed milk must contain fat to the amount of 25 per cent. of the milk solids. A few States (New York, &c.) require the application of the tuberculin test to cows kept in the city, and many States now attempt to secure the destruction of herds most affected with tubercle and to help farmers to free their herds from tuberculous animals. How much they have really accomplished in this direction is not entirely clear, but it does not appear to be great. Considerable opposition is experienced, and little is done save on the application of the owners themselves.

In most communities a placard or sign is put upon the infected premises to notify the public of the presence of infectious disease. Laws requiring the vaccination of school children have been declared constitutional in Indiana, Pennsylvania, New York and California; sometimes it is the teacher who is required by the statute to enforce the law, by excluding the unvaccinated; more often, however, it is the school board or school committee who are supposed to have full control of the teachers. Garbage (animal and vegetable matters from dwellings, shops, markets, &c.) is rarely removed less often than once a week, but in Washington it is removed seven times a week; in New York, Philadelphia and some other towns, six times; and six times weekly in the summer months of the year in many other instances. The dry refuse (ashes and rubbish) is not usually quite so frequently removed; the work is done in New York and Brooklyn six times a week, and in many cities two or three times a week, but in most communities the interval between removals is one week.

There is little doubt that more than one-half of the water furnished in the United States is wasted, for the *per capita* consumption in American is twice as great as that in European cities, and in the few American cities which are metered the *per capita* consumption is not one-half what it is in the unmetred cities. It appears to be the experience in America that meters diminish waste, but do not

limit the legitimate use of water. In many States and cities either the ice is inspected or the source from which it is obtained, or the local sanitary authority controls its cutting or sale.

Spitting on the floor of public conveyances or on the side-walks—a dirty habit which creates a nuisance and favours the spread of tuberculosis—is prohibited by regulations which have been very generally adopted. It has, however, been found insufficient to forbid spitting on the floor of conveyances, as it is said that persons seeing such a rule have deliberately spat upon some other portion of the conveyance. A recent State definition of a nuisance (Utah, 1899) is very commendable. A nuisance is “whatever is dangerous to human life or health, and whatever renders soil, air or water impure and unwholesome.” The Board of Health of Boston adopted regulations in 1900 for control of the barbers’ trade; *inter alia*, mugs, shaving brushes and razors must be immersed in boiling water after every separate use thereof; alum, &c., used to stop the flow of blood, must be so used only in powder form and applied on a towel; the use of powder-puffs and sponges is prohibited; and every barber must cleanse his hands thoroughly immediately after serving each customer. These refinements of sanitation must be very difficult to enforce.

There are excellent reasons why the care of the sick poor should be a part of health department work, and the care of these is in a number of States wholly or partially in the charge of the health department. In most cases it is the outdoor or dispensary work which is given to the health department, but in rarer instances that department also manages the public general hospitals.

The sweating system is said to be associated with, if it be not the direct cause of, the most terrible phase of human life that is to be found in the United States. The “sweat-shop” is a manufactory in the dwellings of the very poor, among whom, if the home be healthy, the labour reasonable and the wages fair, such work is by no means to be discouraged; but the conditions of labour are often such as lead to the destruction of the home by the overcrowding and intense application and competition and the starvation wages of the sweating system. American legislation fails, like our own, to bring about any sufficient amelioration of the disease and misery entailed by the sweating system.

In conclusion, reference may be made to a very useful and full appendix of handbills, forms, notices, &c., used by different sanitary authorities in the United States, which adds much to the value of an interesting and important work.

#### THE CORRESPONDENCE OF HUYGENS.

*Oeuvres complètes de Christiaan Huygens.* Publiées par la Société Hollandaise des Sciences. Tome neuvième, Correspondance 1685–1690. Pp. 663 + 3 plates. (La Haye: M. Nijhoff, 1901.)

THE monumental edition of Huygens’ works has now reached its ninth volume, and at least one more will be required to complete his voluminous correspondence. When reviewing previous volumes we remarked that many private letters of a non-scientific nature might

well have been omitted, as their insertion is the principal cause of the great extent to which the work has grown; but this complaint does not apply to the volume now before us, in which there are scarcely any letters which one could wish omitted, as the few which do not treat of scientific matters give interesting glimpses of life and manners.

In the beginning of 1685 Huygens was still negotiating with the French Government about his return to Paris, and it is not quite clear whether he wanted to go back or not, and whether the revocation of the edict of Nantes was really the sole obstacle. Anyhow, nothing came of the correspondence, and he stayed on at The Hague till the spring of 1688, when he settled at Hofwijck, a property in the neighbourhood of the city which had belonged to his father (who died in March 1687) and of which his elder brother, Constantyn, lent him the use. As Constantyn was secretary to the Prince of Orange, his time was naturally much taken up with affairs of State, but he still found time to correspond with his brother on his favourite pursuit of telescope making, until he had to accompany William III. on his memorable expedition to England in 1688. Several letters give vivid pictures of the great anxiety felt in Holland after the departure of the fleet and the surprise and joy at the rapid progress of the Prince from Torbay to London. The interesting news contained in the letters of Constantyn from London inspired Huygens in the summer of 1689 with a wish to renew old acquaintances and make new ones in England, and accordingly he spent more than two months there, associating with Boyle, Halley, Newton (whom he now met for the first time), his old correspondent Duillier and others. The greatest scientific event of the time was, of course, the publication of Newton’s “Principia” two years before. In June 1687 Duillier wrote to Huygens from London that some of the Fellows of the Royal Society were much excited over the approaching publication of a new work by Newton, and mentioned shortly some of the subjects dealt with in it. In reply, Huygens wrote that he was longing to see the book and did not object to the author not being a Cartesian, provided he did not make such an assumption as that of universal attraction. No doubt he and Newton must have had some conversations on the subject in 1689, and two memoranda by Newton on motion in a resisting medium probably date from this visit of Huygens to London. They were already published in 1701 together with a few notes written by Huygens in his copy of the “Principia,” which after his death was acquired by a certain Groening, who imagined that Newton’s memoranda (which are in his own handwriting) were also written by Huygens. In the “Discours de la Cause de la Pesanteur,” published in 1690 with the “Traité de la Lumière,” Huygens proves the earth to be an oblate spheroid and explains why the seconds’ pendulum is of different length in different latitudes. But he assumes that gravity has its seat at the centre of the earth only, and in the appendix (written after the publication of the “Principia”) he refuses to admit that all the particles of two or several bodies attract or tend to approach each other, as it seems clear to him that such attraction cannot be explained by any principle of mechanics. And in a letter to Leibnitz in